

Factors affecting satisfaction with treatment in European women with chronic constipation: An internet survey

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Abstract

Background: Data on factors affecting treatment satisfaction in European women with chronic constipation are limited.

Objective: To assess factors associated with treatment satisfaction among European women with chronic constipation.

Methods: A 2011–2012 internet survey was conducted in men and women from 12 European countries. Respondents analysed were female with self-reported chronic constipation (≥ 1 symptoms for ≥ 6 months of lumpy/hard stools, feeling of incomplete evacuation, and pain during defecation, as well as < 3 bowel movements/week). For laxative users, satisfaction with treatment, factors affecting satisfaction, and interactions with healthcare professionals were collected.

Results and conclusions: In total, 4805/50,319 participants fulfilled the inclusion criteria (female with chronic constipation). Of the laxative users (1575/4805), 57% ($n = 896$) were satisfied with their treatment, while 26% were neutral, and 17% dissatisfied. Dissatisfied respondents visited their GP less frequently in the past 12 months, were more likely to obtain over-the-counter laxatives, and took a dose higher than recommended more frequently than those satisfied. Respondents were most satisfied with ease of use of treatment and least satisfied with relief from bloating. Newer treatments aimed at alleviating symptoms, particularly bloating, are required for respondents neutral or dissatisfied with their current treatment.

Keywords

Bloating, bulk-forming laxatives, chronic constipation treatment, dissatisfaction, incomplete evacuation, laxatives, osmotic laxatives, patient-reported outcome, satisfaction with chronic constipation treatment, stimulant laxatives

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Introduction

Constipation is a common gastrointestinal disorder comprised of multiple symptoms,^{1,2} which can be primary or secondary.

The prevalence of constipation is difficult to determine, as it depends on the definition used. Clinicians and patients usually differ in their opinion on the definition of constipation; clinicians tend to focus on bowel frequency, whereas patients focus on other symptoms.^{3,4}

Constipation prevalence rates are similar across most geographical regions,⁵ with reports of approximately 17% in Europe.⁶ The prevalence of constipation is influenced by increasing age and gender, with women

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more likely to experience constipation than men.^{6–8} Constipation is often a chronic disorder. Indeed, a recent European survey of 1355 subjects with chronic constipation showed that 69% ($n=940$) had experienced constipation for more than 3 years.⁹ Chronic constipation has been shown to significantly impair quality of life,^{10,11} with a similar impact to other common chronic conditions such as musculoskeletal disorders and inflammatory bowel disease.¹⁰ Besides the patient-related burden, chronic constipation can impose a significant societal burden through indirect and direct costs.¹²

Treatment of chronic constipation should aim to alleviate the multiple symptoms associated with the disorder as well as addressing the underlying pathophysiology.³ Conservative approaches such as lifestyle and dietary modifications are usually recommended prior to any pharmacological interventions;^{13,14} failure of these approaches to provide sufficient relief from symptoms often leads to the use of laxatives, including bulk-forming laxatives, stool softeners, osmotic laxatives, and stimulant laxatives.^{12,14}

Given the widespread¹⁴ long-term¹⁵ use of laxatives, it is important to establish patient satisfaction levels with this treatment and any factors influencing satisfaction. In a US survey of subjects with chronic constipation, 47% were not completely satisfied with their treatment. Reasons provided for dissatisfaction with treatment included efficacy issues (82%), while safety and adverse event concerns, cost issues, taste, and inconvenience were also reported.³ In Europe, reports from two internet surveys on patient satisfaction with chronic constipation treatment ranged from 28 to 32%.^{9,16} It is important to determine what factors influence dissatisfaction with laxatives, particularly in populations where this information is lacking, in order for newer agents addressing these factors to be developed.

Here, the findings of an internet survey are reported, which aimed to assess levels of satisfaction and factors affecting satisfaction with laxatives in female subjects with chronic constipation in Europe.

Materials and methods

An internet survey was conducted from 28 November 2011 to 31 May 2012 in 12 European countries: Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Norway, Spain, Sweden, the Netherlands, and the UK.

Participant recruitment

Participants were recruited through a third-party company, Global Market Insite (GMI), which recruits global panels of respondents to participate in surveys.

The use of participants who frequently take part in surveys has been reported elsewhere.¹⁷

Each participant was categorized according to variables including demographic characteristics, socioeconomic status, and lifestyle such as health factors. Participants based in Europe were invited by GMI via email and were not selected for representation of their country's population. The topic of the survey was not disclosed upon invitation to participate in the survey.

The aim of the survey was to recruit 500 participants (both female and male) per country. The exception to this was Norway, in which the target was 250 due to the limited number of participants available. Participants earned points for the completion of a standard survey, even those who did not, ultimately, meet the inclusion criteria. Points could be exchanged for money, gifts, or a charitable donation once 1000 points had been earned.

Inclusion criteria for the survey were a self-report of constipation defined as ≥ 1 of the following symptoms: lumpy or hard stools; a feeling of incomplete evacuation; and pain during defecation, as well as < 3 bowel movements per week.

Study design

The survey was translated by JB Marshall, a translation agency with medical expertise, and conducted in 10 different languages: Danish, Dutch, English, Finnish, French, German, Italian, Norwegian, Spanish, and Swedish. The questions in the survey were simple, therefore did not require validation, and covered three main areas: demographics (age and sex), constipation (history, treatment, satisfaction, factors influencing satisfaction), and physician contact (visits and treatment advice) (Supplementary Table S1, available online).

The majority of survey questions had predefined answers; however, some allowed free-text entry. Participants were not required to answer all questions, but those providing answers to all questions as well as those answering a subset of the questions were included in the analysis.

Data collection, categorization, and analysis

Constipation is often chronic, more prevalent in women and there were limited data available from male respondents in this survey (Figure 1). To reflect this, only data collected from female respondents experiencing constipation for ≥ 6 months were analysed and reported in this article. Data were collected and categorized according to country. Participants disclosed whether or not they took any medication to treat their chronic constipation and, in a separate question, could select their product from a predefined list of

proprietary products or could select the option 'other' if their product was not listed. The products taken by the respondents were categorized into the following classes: bulk-forming laxatives, osmotic laxatives (excluding sugar-based laxatives), sugar-based osmotic laxatives, and stimulant laxatives. Any products that could not be categorized into the listed classes were assigned to the group 'other'. Summary statistics including mean values and percentages were used to report the results. Combined-country results as well as individual-country data are reported.

Results

Of the 5451 female respondents with constipation, 646 (12%) had experienced constipation for <6 months and

did not fulfil the criteria for chronic constipation (Figure 1). Of the 4805 female respondents fulfilling the chronic constipation criteria (constipation for ≥ 6 months), 740 (15%) had experienced constipation for 6–12 months, 849 (18%) for 1–2 years, 720 (15%) for 3–4 years, 462 (10%) for 5–6 years, 217 (5%) for 7–8 years, 185 (4%) for 9–10 years, and 1632 (34%) had experienced constipation for >10 years.

Respondent characteristics

Age categories of female respondents with chronic constipation ranged from <20 to >70 years, with the greatest number of respondents in the 31–40 years age group (1227/4805, 26%; Supplementary Figure S1).

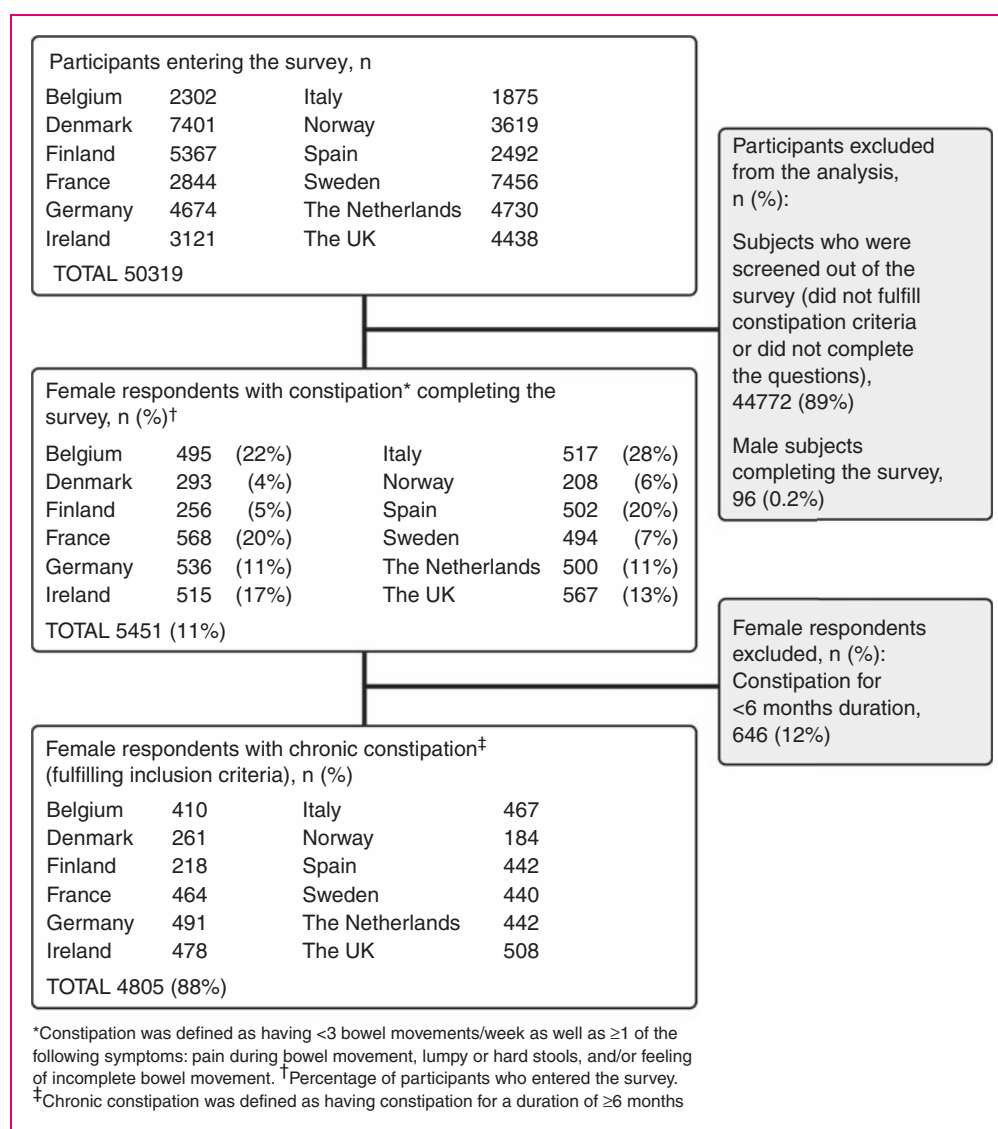


Figure 1. Participant disposition.

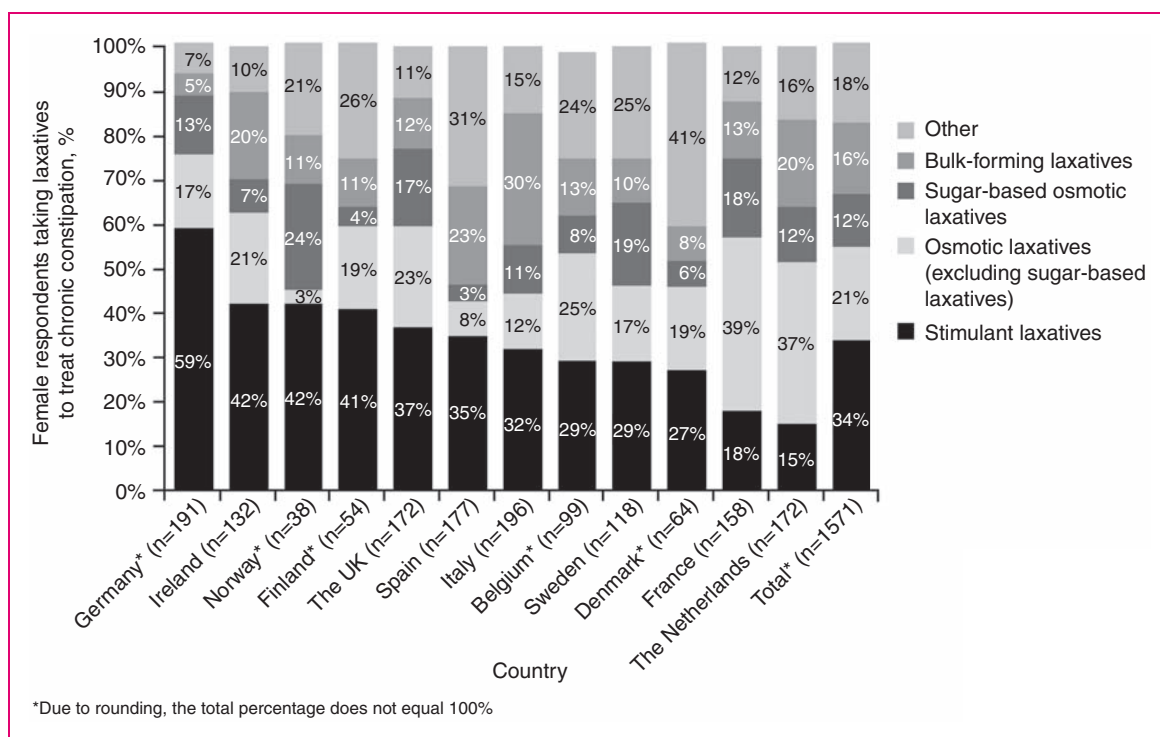


Figure 2. Main product taken by female respondents to treat their chronic constipation.

Female respondents' interactions with healthcare professionals

The majority of respondents with chronic constipation were not diagnosed with chronic constipation by a doctor (3535/4805, 74%). Diagnosis rates varied between the countries (9–45%) with the lowest diagnosis rates reported in Sweden (41/440, 9%), Denmark (27/261, 10%), Norway (19/184, 10%), and Finland (24/218, 11%) and the highest in Italy (208/467, 45%), France (179/464, 39%), and the Netherlands (166/442, 38%).

The majority of female respondents (3689/4783, 77%) obtained professional treatment advice for their chronic constipation, with a GP being the most common professional sought for advice (43%; Supplementary Table S2). In total, 43% (2063/4803) of respondents with chronic constipation had not visited their GP concerning their chronic constipation in the past 12 months. Frequency of GP visits over the past 12 months differed between the countries (overall 57%; range 29–78%), with the lowest rates in Finland, Sweden, Denmark, and Norway and the highest in Italy, Spain, France, and Germany (Supplementary Figure S2a). The majority (3203/4803, 67%) of respondents did not visit a specialist regarding their chronic constipation over the past 12 months (Supplementary Figure S2b).

Chronic constipation treatment

Overall, 67% (3230/4805) of female respondents with chronic constipation disclosed that they were not currently taking medication to treat their condition. The most common reason for not taking medication was that respondents believed their constipation was mild and did not require medical treatment ($n = 1186$, 37%). The remaining reasons given were: a fear of negative effects on the body, or making them feel ill ($n = 682$, 21%); had tried several products but current treatment options did not relieve their constipation ($n = 591$, 18%); treatment was too expensive ($n = 146$, 5%); other reasons such as they had adapted their lifestyle ($n = 625$, 19%).

In total, 1575 respondents reported that they were currently taking medication to treat their chronic constipation. Of these, 1571 disclosed what their main product taken was (Figure 2). Overall, the most commonly used laxatives were stimulant laxatives ($n = 528$, 34%) followed by osmotic laxatives excluding sugar-based laxatives ($n = 332$, 21%). Stimulant laxatives were the most commonly used laxatives in all countries (range 29–59%), with the exception of Denmark, France, and the Netherlands. Sugar-based osmotic laxatives were the least utilized laxatives in the majority of countries with the exception of France, Germany, Norway, Sweden, and the UK.

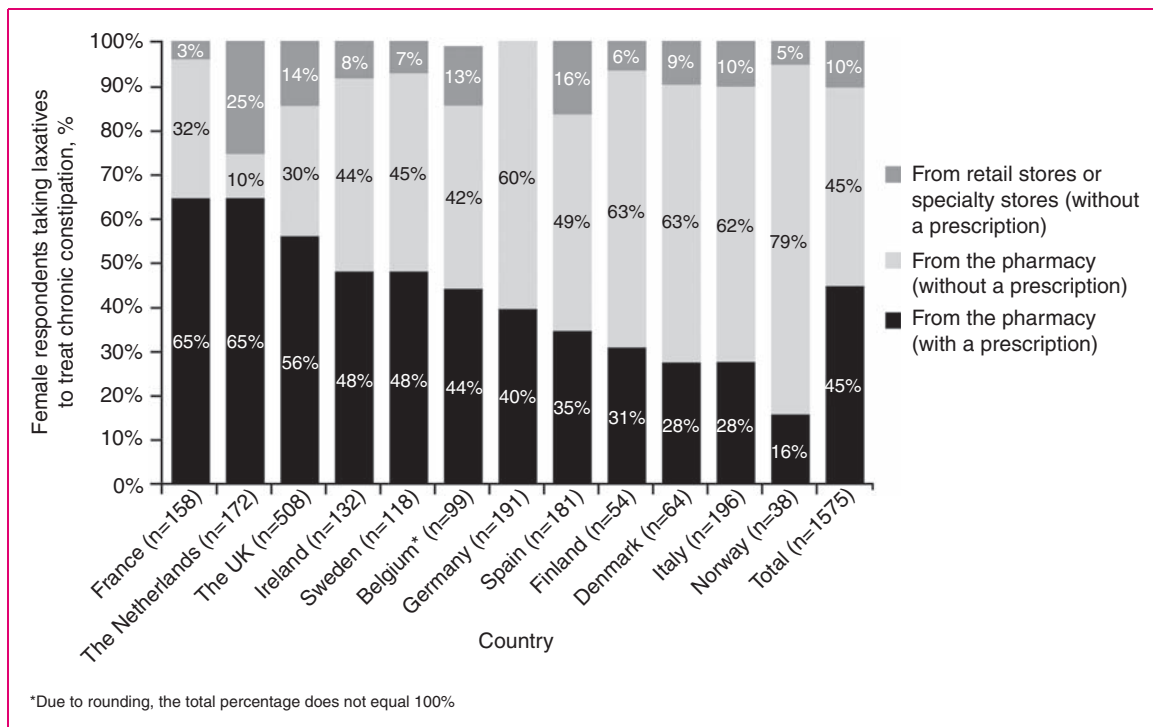


Figure 3. Obtainment of medication by female respondents taking laxatives to treat their chronic constipation.

Almost half (742/1575, 47%) of respondents taking medication to treat their chronic constipation had used between two and four different products since their disease was diagnosed; 32% ($n=510$) of laxative users were taking the same product they initially received, while the remaining respondents ($n=323$, 21%) had taken more than four products since diagnosis.

An equal percentage (45%) of respondents taking laxatives to treat their chronic constipation obtained their medication from the pharmacy based on a doctor's prescription (711/1575) or without a doctor's prescription ($n=701$). The remainder ($n=163$, 10%) obtained their product from a retail or specialty store without a prescription. Country data on how respondents obtained their treatment varied between the countries, with the highest number obtaining their product based on a prescription in France, the Netherlands, and the UK and the lowest in Norway, Denmark, and Italy (Figure 3).

Approximately three-quarters (74%, 1159/1575) of respondents taking laxatives to treat their chronic constipation took a higher dose than recommended by their doctor (Table 1).

Female respondents' satisfaction with chronic constipation treatment

Of the 1575 female respondents taking laxatives, 46% ($n=723$) were slightly satisfied with the overall relief that their product provided and 11% ($n=171$) were

completely satisfied. The remainder were neither satisfied nor dissatisfied ($n=414$, 26%), or slightly ($n=221$, 14%) or completely dissatisfied ($n=42$, 3%) with their product (Figure 4). When comparing satisfaction rates with overall relief from chronic constipation according to product category, satisfaction rates were similar (51–59%) across all five product categories (Table 2).

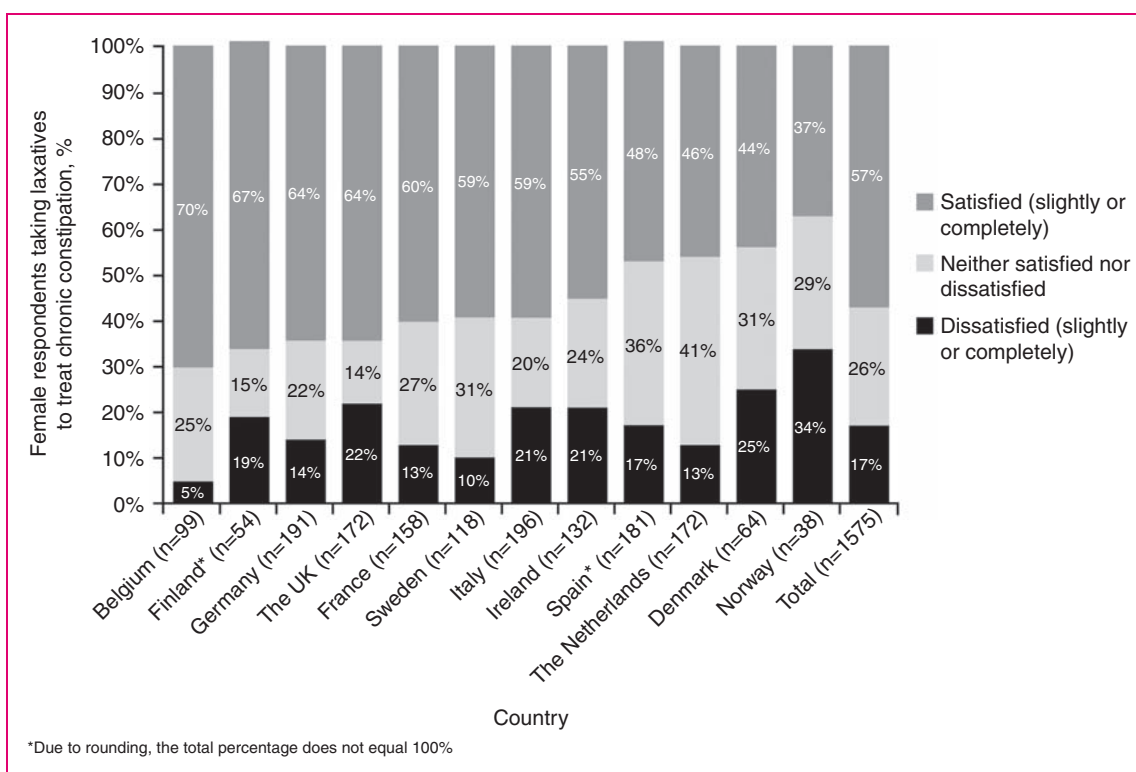
The respondents' level of satisfaction with aspects of their product taken to treat chronic constipation (Figure 5) was highest with ease of use of treatment ($n=1125$, 71%) and lowest with relief from bloating ($n=644$, 41%). Respondents were most satisfied with the ease of use of treatment across all laxative categories (range 68–79%). Female respondents taking osmotic laxatives (both sugar-based and non-sugar-based) and stimulant laxatives were least satisfied with the relief from bloating that their product provided, while those taking bulk-forming laxatives and products categorized as 'other' were least satisfied with the ability of their product to resolve the feeling of incomplete evacuation after a bowel movement (Supplementary Figure S3a–e).

Rates of GP visits in the past 12 months varied between respondents with chronic constipation who were satisfied with their laxative treatment and those that were not satisfied with their laxative treatment. The most common number of GP visits in the past 12 months for respondents satisfied with their laxative treatment was 2 ($n=221/896$, 25%) compared with

Table 1. Frequency with which female respondents with chronic constipation took a higher dose of laxative than recommended by their doctor

Country	Female respondents taking laxatives	Frequency of female respondents taking a higher dose of medication than recommended by a doctor					
		Never	Less than once a month	Once a week	2–3 times/week	4–6 times/week	Every day
Belgium	99	34 (34)	34 (34)	21 (21)	5 (5)	1 (1)	4 (4)
Denmark	64	24 (38)	14 (22)	14 (22)	5 (8)	3 (5)	4 (6)
Finland	54	13 (24)	13 (24)	20 (37)	5 (9)	1 (2)	2 (4)
France	158	39 (25)	44 (28)	53 (34)	14 (9)	5 (3)	3 (2)
Germany	191	30 (16)	67 (35)	63 (33)	17 (9)	11 (6)	3 (2)
Ireland	132	35 (27)	37 (28)	51 (39)	5 (4)	2 (2)	2 (2)
Italy	196	53 (27)	67 (34)	53 (27)	21 (11)	1 (1)	1 (1)
Norway	38	9 (24)	12 (32)	10 (26)	7 (18)	0 (0)	0 (0)
Spain	181	44 (24)	46 (25)	45 (25)	28 (15)	11 (6)	7 (4)
Sweden	118	45 (38)	30 (25)	21 (18)	11 (9)	4 (3)	7 (6)
The Netherlands	172	48 (28)	48 (28)	52 (30)	13 (8)	5 (3)	6 (3)
The UK	172	42 (24)	41 (24)	53 (31)	22 (13)	7 (4)	7 (4)
Total	1575	416 (26)	453 (29)	456 (29)	153 (10)	51 (3)	46 (3)

Values are *n* (%).

**Figure 4.** Female respondents' satisfaction with product taken to treat their chronic constipation by country.

0 visits ($n = 55/263$, 21%) for respondents dissatisfied with their laxative treatment (Supplementary Table S3).

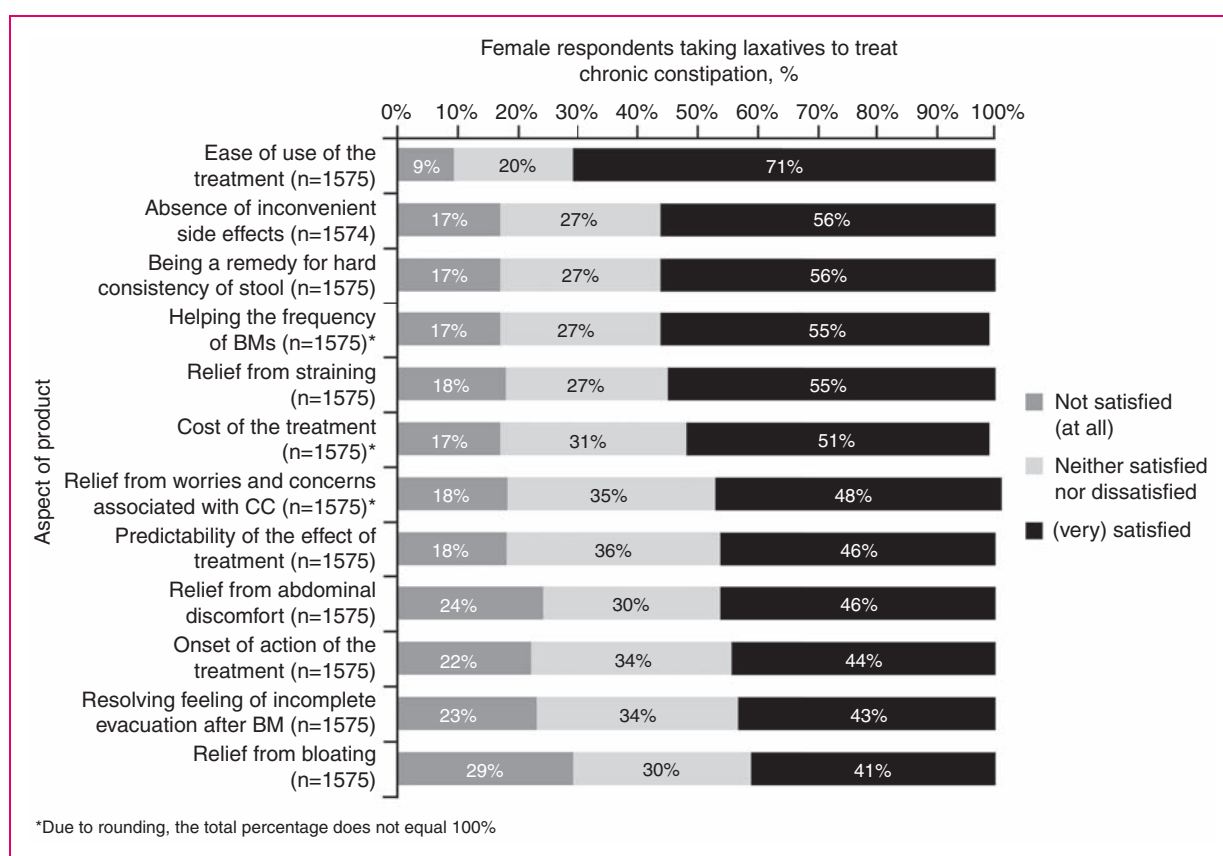
Almost half of female respondents with chronic constipation who were satisfied with their laxative

treatment obtained their laxative treatment from a pharmacy with a prescription ($n = 438/896$, 49%), while over half of female respondents with chronic constipation who were dissatisfied with their laxative

Table 2. Female respondents' satisfaction with product taken according to product category (combined country data)

Product category	Degree of satisfaction with product taken				
	Completely dissatisfied	Slightly dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Completely satisfied
Bulk-forming laxatives (<i>n</i> = 528)	16 (3)	71 (13)	128 (24)	264 (50)	49 (9)
Osmotic laxatives excluding sugar-based laxatives (<i>n</i> = 332)	10 (3)	35 (11)	93 (28)	148 (45)	46 (14)
Other (<i>n</i> = 186)	4 (2)	29 (16)	47 (25)	91 (49)	15 (8)
Sugar-based osmotic laxatives (<i>n</i> = 277)	7 (3)	43 (16)	73 (26)	112 (40)	42 (15)
Stimulant laxatives (<i>n</i> = 248)	5 (2)	43 (17)	73 (29)	108 (44)	19 (8)

Values are *n* (%).

**Figure 5.** Female respondents' satisfaction with aspects of their product taken to treat their chronic constipation (combined country data).

treatment obtained their laxatives from the pharmacy without a prescription (*n* = 135/263, 51%; Supplementary Table S4).

Of the 896 laxative users who were satisfied with their treatment for chronic constipation, 31% (*n* = 280) took a dose higher than recommended by their GP or specialist less than once a month (the most common frequency category). For those respondents dissatisfied with their laxative treatment, the most

common frequency of taking a dose higher than recommended by their GP or specialist was once a week (*n* = 74, 28%; Supplementary Table S5).

Discussion

The aim of this multinational internet survey was to determine the level of satisfaction with laxatives, and the factors affecting satisfaction with laxatives, in

European women with chronic constipation. In this survey, chronic constipation was defined using elements of the Rome III criteria, namely, fewer than three bowel movements per week and one or more of the following symptoms experienced for ≥ 6 months: lumpy or hard stools, a feeling of incomplete evacuation, and pain during defecation.² One limitation of this survey is the use of three bowel movements per week as an inclusion criterion; chronic constipation is multifaceted, comprising multiple symptoms² and patients often define their condition based on symptoms.⁴ Furthermore, the inclusion of subjects with self-reported chronic constipation as opposed to those with a diagnosis from their GP/specialist (according to Rome III criteria) could have increased the probability of including female respondents with constipation-predominant IBS, given that the symptoms of this condition may overlap with those of chronic constipation.¹⁸ One option would be for future studies to use Rome III criteria to define chronic constipation, to provide a coherent patient population and avoid overlap with other disorders, such as IBS.

Chronic constipation can have a long duration.³ Indeed, in this survey, approximately one-third (34%) of women had experienced constipation for more than 10 years.

The published literature indicates that the prevalence of constipation increases with age and is a particular problem for the elderly;^{19–21} however, in our survey, only 6% of women with chronic constipation were aged >60 years. This may be due to a bias towards subjects with access to the internet, resulting in a higher number of young and middle-aged subjects completing the survey than elderly subjects. Nonetheless, these results are consistent with a survey conducted by Wald et al.²² in four European countries (France, Germany, Italy, and the UK), as well as South Korea, Brazil, and the USA, in which the most common age category for respondents with self-reported chronic constipation (assessed using Rome III criteria) was 30–59 years.

As data supporting the benefit of dietary and lifestyle modifications are limited,²³ patients with chronic constipation are more likely to be treated with laxative therapy. The lack of head-to-head clinical trials of laxatives has led to the absence of superiority of one laxative class over another;¹³ however, some laxative classes have been shown to exacerbate particular symptoms of chronic constipation, such as bloating, more than others.²⁴ In our study, we found that stimulant laxatives were the most common treatment used among women taking medication to treat their chronic constipation. This finding is consistent with the results of an internet survey conducted by Müller-Lissner and colleagues⁹ in 10 European countries, where diphenolic

laxatives (bisacodyl and sodium picosulphate) were the most frequently used treatment by respondents with self-reported chronic constipation.

Our results showed that only 11% of women were completely satisfied with their chronic constipation treatment, with 46% slightly satisfied and 17% dissatisfied with their treatment. Similar rates of satisfaction were reported for all 5 types of laxatives (bulk-forming laxatives, osmotic laxatives excluding sugar-based laxatives, sugar-based osmotic laxatives, stimulant laxatives, and ‘other’ laxatives) taken. Women were most satisfied with the ease of use of their products, but least satisfied with the relief from bloating that their product provided, as well as the ability of their product to resolve the feeling of incomplete evacuation. Women who were satisfied with their laxative treatment visited their GP more frequently in the past 12 months than those who were not. Satisfied laxative users mainly obtained their treatment using a prescription, while the majority of dissatisfied respondents obtained their laxatives without a prescription and exceeded the recommended dose more frequently. These findings could indicate that patients who seek treatment advice from a healthcare professional and obtain a prescription for their medication are likely to receive a more appropriate treatment for their condition than those that self-medicate.

A survey conducted in panellists representative of the US population reported medication use in 72% ($n=385/533$) of the chronic constipation population.³ In a European survey conducted by Müller-Lissner et al.,⁹ 68% ($n=855/1255$) of respondents reported using laxatives to treat their chronic constipation. However, our results suggest that women may be less likely to take laxatives, as the majority of female respondents (67%) did not use laxatives, with the primary explanation being that their constipation was mild and did not require medical treatment. A proportion of women stated that they did not take a product to treat their chronic constipation, because they had tried several products and the current options did not relieve their constipation symptoms. Furthermore, some women with chronic constipation were concerned that taking medication would make them unwell. The finding that the majority of women were not taking laxatives to treat their chronic constipation as their condition was considered mild suggests that the definition of chronic constipation used should have included additional criteria in order to capture those respondents that were impacted by their disease and required medical attention. A survey conducted in Germany also found that a high percentage of female respondents with chronic constipation (80%, $n=392/492$) did not take laxatives to treat their condition.¹⁶ A possible explanation for the differing results between internet surveys is the participant recruitment process.

The European survey recruited participants via internet advertising (Google Adwords) targeted at searchers using keywords relating to treatment,⁹ which may have led to a higher number of laxative users completing the survey.

Our findings suggest that new therapeutic options are required for those women who are either dissatisfied with their laxative treatment, or for whom current treatments do not alleviate their symptoms. These new treatments should be easy to use (oral preparations) and should aim at alleviating the symptoms that current treatments are failing to adequately relieve, namely bloating and a feeling of incomplete evacuation after a bowel movement.

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Although the sponsor was involved in the design, collection, analysis, interpretation, and fact checking of information, the content of this manuscript, the ultimate interpretation, and the decision to submit it for publication in the United European Gastroenterology Journal was made by the authors independently. The authors confirm that the data presented provide an accurate representation of the study results.

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Conflict of interest

AE has served on advisory boards with and received speaker fees from Almirall, Medtronic, Norgine, and Shire.

AJB has received research funding from AstraZeneca, Endostim, MMS, and Shire and has received speaker fees from MMS and Shire.

DS is an employee of and owns stock in Shire.

DU has served as a speaker for Shire and has received speaker fees from Shire and Takeda.

EMMQ has served on advisory boards for Almirall, Ironwood, Rhythm, and Shire, has received research support from Procter and Gamble, Merck, Norgine, and Alimentary Health, and has received speaker fees from Shire, Danone, Yakult, Procter and Gamble, Sanofi, and AstraZeneca.

ER has received unrestricted grants from Almirall, Norgine, Menarini, and Shire and has served as a speaker for Shire, Menarini, and Norgine.

JMS has served as a speaker for Shire and Cephalon (Teva).

JT has served on advisory boards with and received speaker fees from Almirall, AstraZeneca, Danone, GlaxoSmithKline, Ironwood, Menarini, Novartis, NPS Pharma, Takeda, Shire, Theravance, Tranzyme, and Zeria.

LV is an employee of and owns stock in Shire.

MS has received unrestricted grants from Danone and AstraZeneca and has served as a consultant/advisory board member for AstraZeneca, Danone, Novartis, Almirall, and Shire.

RC has received research funding from Alfa Wassermann, Bracco, and AstraZeneca and has received speaker fees from Shire, Alfa Wassermann, Malesci, AstraZeneca, Almirall, and Novartis.

RSG is an employee of and owns stock in Shire.

SML has served as an advisor and/or speaker for Almirall, Boehringer Ingelheim, and Shire-Movetis.

VA has served on advisory boards and received speaker fees from Almirall, Ardeypharm, AstraZeneca, Falk, Mundipharma, Norgine, and Shire.

YF has served as a consultant for Shire.

YY has served on advisory boards and received speaker fees from Almirall and Shire and received research funding from Medtronic and Shire.

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